

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-174 (cancelled).

Claim 175 (new): An *in vitro* method for the generation of cartilage tissue from mammalian cartilage cells expressing mechanosensitive TREK potassium ion channels, the method comprising:

- (i) providing mammalian cartilage cells in culture *in vitro*, wherein the cells express mechanosensitive TREK potassium ion channels;
- (ii) providing magnetizable particles comprising a magnetic core and biocompatible coating, wherein the magnetizable particles are tagged with one or more antibodies specific for said TREK potassium ion channels;
- (iii) contacting said cells with said magnetizable particles and allowing the magnetizable particles to couple with said TREK potassium ion channels;
- (iv) applying a magnetic field to said cells, the magnetic field thereby applying mechanical force to said magnetizable particles.

Claim 176 (new): The method of claim 175 wherein the method is for the generation of artificial cartilage tissue.

Claim 177 (new): The method of claim 175 wherein the cartilage cells are chondrocytes or chondrocyte progenitor cells expressing mechanosensitive TREK potassium ion channels.

Claim 178 (new): The method of claim 175 wherein said TREK potassium ion channel is TREK-1.

Claim 179 (new): The method of claim 175 wherein the magnetic field is a variable magnetic field having a frequency of from 0.1 to 10Hz.

Claim 180 (new): The method of claim 175 wherein the magnetic field has a flux density of 10mT to 1400mT.

Claim 181 (new): The method of claim 175 wherein the magnetizable particles have a mean size of 5000 nm or less.

Claim 182 (new): The method of claim 175 wherein the magnetizable particles comprise elemental iron (Fe), or a compound thereof.

Claim 183 (new): The method of claim 182 wherein the iron compound is an iron salt selected from the group consisting of: magnetite (Fe_3O_4), maghemite (γFe_2O_3), greigite (Fe_3S_4), and combinations thereof.

Claim 184 (new): The method of claim 175 wherein the magnetizable particles comprise a chromium compound.

Claim 185 (new): The method of claim 184 wherein the chromium compound is chromium oxide (CrO_2).

Claim 186 (new): A method for the generation of new cartilage tissue in a patient, wherein the new cartilage tissue is generated from cartilage cells expressing mechanosensitive TREK potassium ion channels, the method comprising:

- (i) providing magnetizable particles comprising a magnetic core and biocompatible coating, wherein the magnetizable particles are tagged with one or more antibodies specific for said TREK potassium ion channel;
- (ii) administering said particles to a mammalian patient in need of generation of new cartilage tissue, wherein said particles are administered to a site in the patient at which new cartilage tissue is required to be generated and at which cartilage cells expressing the mechanosensitive TREK potassium ion channel are present, and

allowing the magnetizable particles to couple with said TREK potassium ion channels;

(iii) applying a magnetic field to said cells, the magnetic field thereby applying mechanical force to magnetizable particles in the body of the patient.

Claim 187 (new): The method of claim 186 wherein the method involves wound healing in the patient through the generation of new cartilage tissue.

Claim 188 (new): The method of claim 186 or 187 wherein the cartilage cells are chondrocytes or chondrocyte progenitor cells expressing mechanosensitive TREK potassium ion channels.

Claim 189 (new): The method of claim 186 wherein said TREK potassium ion channel is TREK-1.

Claim 190 (new): The method of claim 186 wherein the magnetic field is a variable magnetic field having a frequency of from 0.1 to 10Hz.

Claim 191 (new): The method of claim 186 wherein the magnetic field has a flux density of 10mT to 1400mT.

Claim 192 (new): The method of claim 186 wherein the magnetizable particles have a mean size of 5000 nm or less.

Claim 193 (new): The method of claim 186 wherein the magnetizable particles comprise elemental iron (Fe), or a compound thereof.

Claim 194 (new): The method of claim 193 wherein the iron compound is an iron salt selected from the group consisting of: magnetite (Fe_3O_4), maghemite (γFe_2O_3), greigite (Fe_3S_4), and combinations thereof.

Claim 195 (new): The method of claim 186 wherein the magnetizable particles comprise a chromium compound.

Claim 196 (new): The method of claim 195 wherein the chromium compound is chromium oxide (CrO_2).